REMARKS

Reconsideration and allowance of the above-referenced application are respectfully requested. No new matter has been added.

35 USC § 101

Claims 1-41, 45-48 and 53-64 stand rejected under 35 U.S.C. § 101 because allegedly the claimed invention is directed to non-statutory subject matter. As suggested in the office action, the claims have been amended to expressly state in the body of the claimed methods that certain aspects are conducted using at least one computing system.

Accordingly, it is respectfully requested that the rejections under 35 U.S.C. § 101 be withdrawn.

35 U.S.C. § 103

Claims 1-11, 17-41 and 49-52 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Gopinathan et al. (U.S. Patent No. 5,819,226) in view of Fischthal (U.S. Patent No. 5,822,741) and Downs, Sean, "Technology, education aid medical fraud fighting." Claims 12-16 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Gopinathan et al. in view of Fischthal , Downs, and Prezioso (U.S. Patent No. 5,724,488). Claims 45-48 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Gopinathan et al. in view of Prezioso. Claims 53-64 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Gopinathan et al. in view of Fischthal , Downs, and Werstein Hann, Leslie "High Tech Sleuths". These rejections are respectfully traversed.

For a proper rejection under 35 U.S.C. §103(a), the Office "bears the initial burden of

factually supporting any prima facie conclusion of obviousness" and must therefore present "a clear articulation of the reason(s) why the claimed invention would have been obvious." MPEP §2142. An obviousness rejection "cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." MPEP §2141 quoting KSR International Co. v. Teleflex Inc., 82 USPQ2d 1386, 1385 (2007). This rationale must include a showing that all of the claimed elements were known in the prior art and that one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, to produce a combination yielding nothing more than predictable results to one of ordinary skill in the art. KSR, 82 USPQ2d at 1395. MPEP §2141.02 further notes that "a prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the subject matter recited in the pending claims. W.L. Gore & Associates, Inc. v. Garlock, Inc., 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984). It is respectfully submitted that the stated rejections under 35 U.S.C. §103(a) fail to satisfy this burden with regard to the currently pending claims.

Each of claims 1-41 and 49-58 stand rejected as allegedly being obvious in light of one or more references in combination with Downs. A Declaration under 1.132 executed by Richard Billion, assignee of the current application, is being concurrently submitted (the "Declaration") to demonstrate that the patent application was derived, in part, from the subject matter described in Downs.

As stated in the Declaration, it is believed that Mr. Downs was an employee of HNC Software, Inc. (or one of its affiliated companies) at the time of filing of the current application, that Mr. Downs, a co-inventor on the current application, had an obligation to assign this patent

application to HNC Software, Inc. at the time of filing of this patent application, and that the subject matter described in the Downs reference describes subject matter from which the subject matter recited in the claims of this patent application was derived.

Based on the foregoing, it is respectfully submitted that the Downs reference, which was published less than one year before the filing date of the current application, is not prior art and that the rejections under 35 USC § 103 based on the Downs reference should be withdrawn.

Moreover, claim 45 has been amended to recite: "the quantity being estimated being a risk factor characterizing misrepresentation of policy related information provided to an insurer by a policyholder where the information is used by the insurer in determining an amount of premium to be paid for insurance coverage provided to the policyholder" (based in part, on previous claim 1), and should also be allowable because the cited references fail to suggest such an arrangement (and Downs is not a reference that can be cited against the claim as amended).

Accordingly, the claims should be allowable.

Concluding Comments

It is believed that all of the pending claims have been addressed in this paper. However, failure to address a specific rejection, issue or comment, does not signify agreement with or concession of that rejection, issue or comment. In addition, because the arguments made above are not intended to be exhaustive, there may be reasons for patentability of any or all pending claims (or other claims) that have not been expressed. Finally, nothing in this paper should be construed as an intent to concede any issue with regard to any claim, except as specifically stated in this paper, and the amendment of any claim does not necessarily signify concession of unpatentability of the claim prior to its amendment. Applicant asks that all claims be allowed.

If there are any questions regarding these amendments and remarks, the Examiner is encouraged to contact the undersigned at the telephone number provided below. The Commissioner is hereby authorized to charge any additional fees that may be due, or credit any overpayment of same, to Deposit Account No. 50-0311, Reference No. 35006-577001US.

Respectfully submitted,

Date: March 12, 2009

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Technology, education aid medical fraud fighting

By Sean Downs

Fraudulent health care and workers' compensation claims are a major — and primarily undetected — source of losses to employers and insurance carriers. More than $120 billion a year is lost due to insurance fraud, according to a study by Conning and Co.

The health care sector is cited as the most victimized with $95 billion in fraud losses, followed by property/casualty at $20 billion. In workers' comp, fraud losses exceed $5 billion, yet only about 20% of this fraud is detected. The General Accounting Office estimates that fraud costs Americans the equivalent of $1 out of every $10 paid for health care claims.

While 88% of Americans recognize that fraud is a major force behind premium increases (1996 Gallup poll), 17% say they would stay away from work longer than warranted by an illness or injury and collect income replacement benefits. Further, one in three believe it is acceptable to overstate their insurance claims, according to a 1994 public attitude survey by the Insurance Research Council.

Workers' comp fraud is particularly hard to detect because there is no centralized national reporting system and is, by nature, "no-fault." The workers' system stands apart from the civil and criminal justice systems with its own rules, judicial proceedings and regulatory process. In most states, workers' comp is administered by multiple agencies, and systems are oriented toward the administration of benefits rather than criminal justice. Only 32 states have laws that define insurance fraud as a felony.

Employers pay the high cost of fraud in the form of increased premiums and lower productivity and morale. Employees, too, pay for fraud through higher cost sharing for health care premiums. They may also have to pick up the slack of a malingering co-worker, and pay raises or bonuses may suffer if the company's financial picture is adversely affected by fraud losses.

High-tech sleuthing

What can employers, TPAs and insurers do to reduce fraud losses? The key lies in improving the accuracy of fraud detection, and detecting fraud earlier in its life cycle.

New advances in technology have vastly improved our ability to detect fraud accurately and quickly. Traditionally, fraud has been detected by human observation. Adjusters, whose fraud awareness and knowledge can vary widely, might observe suspicious activity in a claim, or an employer or co-worker may report it through a telephone hotline.

New innovations such as predictive technology can identify, in real-time, when fraudulent activity begins. Neural network models "trained" with historical claims data score claims on an ongoing basis, processing many more variables simultaneously than the human mind can absorb. As the scores reach a certain threshold, the likelihood of fraudulent activity increases. One predictive technology model, VeriComp

Contingencies Magazine. Nov-Dec 1998
Reprints being ordered.

TRADECRAFT

BY SEAN DOWNS

Predictive Technology and the Transformation of the Insurance Industry

THE INSURANCE INDUSTRY IS POISED FOR A REVOLUTION in technology that will transform its operations in both workers' compensation and group health care. Today, many transactions in this sector are still performed by humans, and many decisions still reside with the expertise and time of a human agent.

In other words, decisions are made based on subjective vs. objective information. Fraud detection, for example, is done primarily by claims adjusters who observe suspicious activities on a claim. Cases are evaluated by nurse reviewers who accumulate enough information to determine that case management is required.

The accuracy and efficiency of these decisions is limited by the inability of the human mind to process the enormous number of variables that play a part in determining if a claim is an exception or not. Think of the exceptions as being a few bad fish swimming in a large ocean. If technology were available that could improve the odds of finding the target—claims that are exceptions in some way—it could reduce the ocean to a small pond containing a high ratio of targets to nontargets. The goal of this technology is to improve the fishing, to make it easier to identify claims that are exceptions and to know, without human analysis, what makes them exceptions.

To envision the possibilities of such a change, consider another transaction-intensive industry—financial services. Technology has made possible electronic banking, automated information access in real time and even improved credit card fraud detection by 20 percent to 50 percent. Anyone who has gotten a phone call from a credit card company asking about suspicious-looking purchases has experienced the ability of technology to model multiple variables of fraudulent behavior and track every account and transaction in real time to catch and prevent fraud almost as it's occurring.

The insurance industry, as yet, has not developed these types of electronic solutions. The areas of fraud, recoveries and managed care hold particular promise of improving profitability and reducing loss by managing an electronic transaction stream and focusing on exceptions.

According to a Conning & Company study (Insurance Fraud: The Quiet Catastrophe), insurance fraud may cost the industry $120 billion a year, a 30 percent increase in just five years. The health care sector is cited as the most victimized, with $95 billion in fraud losses, followed by property/casualty at $20 billion. Tools that can reduce these losses can have a tremendous financial impact on the profitability of the industry.

Obstacles to Improved Efficiency

The insurance industry faces many particular obstacles in managing and mining the mother lode of information and making it more efficient, some of which are discussed here. Current objective measures to date are flawed because of the challenge posed by the interactivity of the data, information fragmentation and constant changes in external forces.

- *Data interactivity.* Because numerous claim features interact with each other, determining what to do in a given situation can be difficult. Also, the volume of data and the number of variables that describe an event make it inefficient and extremely difficult for a human to isolate transactions that require scrutiny.
- *Information fragmentation.* There's also the problem of information fragmentation, which occurs

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when a set of transactions is incomplete and unavailable. The result is an incomplete picture of important events. Information becomes fragmented because transaction data come from many different sources—doctors, physical therapists, hospitals—and move to many different destinations: different insurance companies, third-party administrators and government agencies. Moreover, different transactions move at very different speeds from source to destination.

■ *Industry changes.* Few industries experience the frequency or magnitude of change seen in health care and insurance. Changes in legislation, corporate policy, payment systems and market forces, as well as trends in disease, treatment and safety, contribute to the chaos.

Because of these and many other complexities, there are limits to the use of simple, rules-based, red-flag systems in identifying the exceptions that need to be recognized and dealt with. For example, both analysis and experience indicate that back injuries and strain-sprain injuries are more likely to be fraudulent than eye injuries and lacerations. However, the vast majority of back injuries and strain-sprain injuries are valid. A strategy that requires review of all such claims will generate large numbers of false positives (legitimate claims incorrectly labeled as suspects). Too many false positives lead to the ineffective use of analysts and investigators.

New Breakthroughs in Technology

New breakthroughs in technology can now use historical information to predict these decisions with far more accuracy and efficiency than current methods. These new types of technology can "learn" which patterns are associated with characteristics of claims that are exceptions and which are not. The patterns include nonlinear relationships and interactions among many variables that quickly overwhelm even the most proficient human experts.

Predictions of the future are based on an understanding of the past. Powerful analysis, applied to historical data, is the key to discovering the hidden relationships that allow accurate predictions of important facts such as:

■ Which providers will have the best outcomes;

■ Which cases should be case managed;

■ What the "payout" for a given claim will be;

■ Which cases are most likely to have delayed recovery;

■ Which clinical methods provide the best results;

■ Which claims are misrepresented by claimants or fraudulently handled by providers.

ANYONE WHO HAS GOTTEN A PHONE CALL FROM A CREDIT CARD COMPANY ASKING ABOUT SUSPICIOUS-LOOKING PURCHASES HAS EXPERIENCED THE ABILITY OF TECHNOLOGY TO MODEL MULTIPLE VARIABLES OF FRAUDULENT BEHAVIOR AND TRACK EVERY ACCOUNT AND TRANSACTION IN REAL TIME TO CATCH AND PREVENT FRAUD ALMOST AS IT'S OCCURRING.

Predictive Technology

What are these new technologies, and how do they work? This term refers to the ability to use historical data from the past to predict current and future behavior. Creating an effective predictive

software solution requires three steps: First, create dynamic profiles to capture relevant behavior patterns. Second, construct models to generate actionable results. And third, develop action steps and strategies to realize savings.

Dynamic profiling is a collection of techniques that transforms huge volumes of claims data into behavioral features describing how each of the relevant players in the system operates. Using dynamic profiling technology, a software application can capture the behavior of every individual player in the system for use by many different decision models.

Simply defined, a model is a mathematical equation that describes the relationships between individual characteristics, called input variables, that may affect a situation. The solution to the equation tells how the situation will turn out.

The traditional approach to building models is to manually analyze the complex statistical relationships among the inputs. Using that approach, solving complex modeling problems requires massive human effort. Neural networks eliminate that enormous manual effort by automatically identifying highly complex relationships among the data.

THE MARKET FOR PREDICTIVE SOFTWARE SERVICES IN THE YEAR 2000 IS ESTIMATED TO BE $3.7 BILLION, UP FROM $1.6 BILLION IN 1997—MORE THAN DOUBLE IN JUST THREE YEARS.

Neural networks are the technological building blocks for predictive technology. Neural networks are advanced statistical models that learn, from historical data, how to combine independent variables to produce the desired outcome. The user supplies data to the processing elements in the "input layer." The processing elements perform their calculations and send the results to the next layer, until the "output layer" produces a result—the prediction.

The accuracy of a neural network model depends on how well the model is trained, by using a set of data with known results. The network begins training by making predictions with randomly adjusted weights. The network then compares its predictions with the known results and adjusts each weight so that it causes less error. After reviewing thousands of examples hundreds of times, the network learns patterns and trends that enable it to make accurate predictions.

The final step is to develop strategies for using system results. Different score ranges, for example, may result in different actions. The determination of effective operational usage strategies to meet a customer's needs is enabled by simulation studies on historical data.

Adding the Element of Interactivity

Although information describing a claim injury is static, the claimant's activity patterns are described by transactional data. The ability to characterize, or profile, an individual on the basis of a stream of relevant transaction information is fundamental to many modeling problems. Building a model requires a fixed-format summary representation of the information in the transaction stream and a summary that contains the information required to discriminate between, say, valid and abusive behavior. Thus, a claim can be dynamically maintained and updated in real time as each new transaction presents itself, allowing an up-to-date characterization of the entity being profiled.

For example, the outcome might be a yes-or-no decision to provide a specific medical treatment to a particular patient. Or the model may produce a score to guide the user in making a judgment. A medical claim may be assigned a fraud risk score from 1 to 1000, where a higher score indicates a greater likelihood of fraud. Claims with scores less than 400 may be treated as valid, and claims with scores greater than 400 may be closely monitored.

In predictive technology, the value derived from a system depends on more than just score accuracy. A poorly used accurate score will be of little value. The model provides score reasons to help users identify and evaluate the specific activity that indicates a case requires intervention.

General explanations show which information, across the total population being evaluated, is most important in determining which observations require closer scrutiny. Those explanations can provide guidance for setting policies for such things as determining which data to collect and which to ignore. When a medical case requires case management intervention, specific explanations can point users to particular behaviors to review first. This can improve both the efficiency and accuracy of the review process. Systems can use a basic client-server architecture designed to work on several platforms and to integrate easily with existing information systems.

The result of the use of predictive

technology is the automating of decision processes that were formerly made primarily on the basis of human observation. Humans then can make decisions guided by model results. For example, a score might indicate several possibilities: an employer has misrepresented premium information; a case could benefit from case management; or a claimant has misrepresented injury information. The human reading the report, and knowing the reasons for a high score, can then use this objective information to act.

Predictive Technology in Action

The Workers' Compensation Fund of Utah is one company that has directly experienced the benefits of predictive technology. In order to more aggressively pursue fraud detection, the company established a special investigative unit (SIU) that has, in the past five years, resulted in a significant reduction in fraud and savings of approximately $16 million. Wanting to take the program a step further and to detect fraud early in the life of the claim, the agency contracted with Risk Data Corporation (now HNC Insurance Solutions) to develop a predictive technology model based on historical analysis of more than 800 raw and derived variables indicating fraud. It returns a score from 0 to 1,000, with a higher score indicating a higher likelihood that abuse is taking place.

The system scores each claim on an ongoing basis. This ongoing reassessment is vital, because, first of all, it's often difficult to discern good claims from bad claims at the start of the claim; as time passes, however, good and bad behavior patterns diverge. Second, most fraud and abuse are opportunistic rather than planned. This means that many claims start out as perfectly valid and then turn bad.

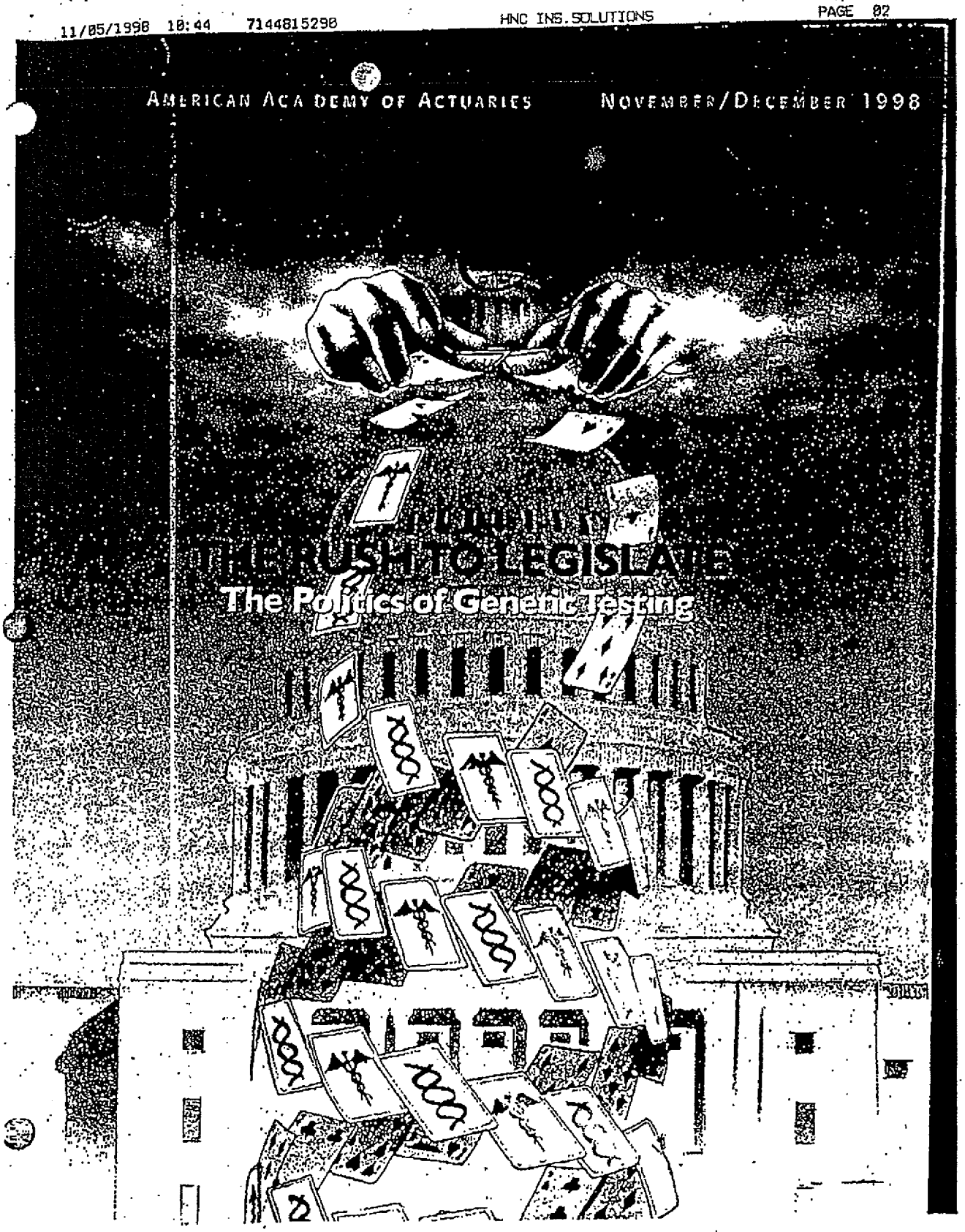
The claims adjusters provide the initial screening of claims at WCF-Utah. The current model usage strategy and score thresholds result in fewer than 1 percent of all open claims being brought to an adjuster's attention each week. Many don't warrant prosecution but are most effectively handled by the adjuster (via counseling and/or warnings). Those claims that are sufficiently serious are referred to the SIU, which focuses on prosecuting fraud and on achieving recoveries.

Since the implementation of this program, the referral rate to SIU investigators has increased 36 percent. However, because of the quality of referrals, along with the supporting reasons provided, this has not resulted in additional work for the SIU. In less than six months, the system detected 53 fraudulent claims that would otherwise have been missed. Of these claims, eight have been closed and sent for prosecution, with an estimated savings of over $500,000. Other cases remain under investigation. These results represent a 24 percent increase in the number of fraudulent claims detected and a 25 percent increase in savings from the use of predictive technology.

How big a change does this technology represent? Again, think of the financial services industry before automatic tellers and electronic banking. The market for predictive software services in the year 2000 is estimated to be $3.7 billion, up from $1.6 billion in 1997—more than double in just three years.

Besides the examples cited in this article, predictive technology is applicable to functions such as safety, loss reduction, sales and marketing, underwriting, pricing and profitability forecasting, preferred provider organization determination, contracting for risk, clinical paths, provider outcomes and disease management—virtually every segment of the group health and property/ casualty insurance sectors. All these applications address how we as an industry can solve the problem of having more data and less time to make appropriate decisions. In summary, predictive technology promises to be the next breakthrough for making the best business decisions in virtually every area of our business. ●

AMERICAN ACADEMY OF ACTUARIES NOVEMBER/DECEMBER 1998



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Assignments Data

Patent Assignment Abstract of Title

Total Assignments: 3

Application #: 09373926 Filing Dt: 08/12/1999 Patent #: NONE Issue Dt:
PCT #: NONE Publication #: NONE Pub Dt:
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Title: DETECTION OF INSURANCE PREMIUM FRAUD OR ABUSE USING A PREDICTIVE SOFTWARE SYSTEM

Assignment: 1

Reel/Frame: 010304 / 0352 Received: 10/18/1999 Recorded: 10/12/1999 Mailed: 01/10/2000 Pages: 6
Conveyance: ASSIGNMENT OF ASSIGNORS INTEREST (SEE DOCUMENT FOR DETAILS).
Assignors: LUK, HO MING Exec Dt: 09/20/1999
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Assignment: 2

Reel/Frame: 014506 / 0405 Received: 04/08/2004 Recorded: 04/08/2004 Mailed: 04/16/2004 Pages: 9
Conveyance: MERGER (SEE DOCUMENT FOR DETAILS).
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Assignment: 3

Reel/Frame: 014119 / 0706 Received: 06/05/2003 Recorded: 06/02/2003 Mailed: 11/14/2003 Pages: 6
Conveyance: MERGER (SEE DOCUMENT FOR DETAILS).
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